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Program 437 and Associated Programs.

The Program 437 installation at Johnston Island became fully operational in June 1964. After that date, ADC concentrated on improvement of the ground guidance system (GGS) on Johnston Island and at the Program 437 training facility at Vandenberg AFB, California, and on the maintenance of the capabilities of the launch crews on Johnston Island. To maintain launch skills, ADC planned a continuing series of Combat Training Launches (CTL). The initial CTL occurred in November 1964, with the second on 5 April 1965.

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Also in the spring of 1965, ADC began planning the replacement of the original GGS (Bell Telephone Laboratories-BTL--radar and Athena computer) with Titan radar and UNIVAC 642B computer "b1" to make possible 360-degree coverage of the area surrounding Johnston Island instead of the 210-degree coverage of the original GGS. Two GGS stations were involved on Johnston Island--Buildings 990 and 100. Building 990 was converted first and by the end of 1966 installation of equipment was virtually complete. It was anticipated that a THOR launching of 20 February 1967 would both demonstrate the capacity of the new GGS and serve as a long-delayed third CTL.

Acceptance and testing of GGS-2

(Building 990) did not follow the original plan, however. ADC first balked at accepting GGS-2 because of radio frequency (RF) interference between GGS-2 and the launch emplacements. Also, the proposed CTL of 20 February 1967 was postponed because the launch crew was felt to be insufficiently trained. By mid-February 1967, though, ADC had decided that it would accept GGS-2 with the RF problem still unsolved and without a demonstration launch of the THOR. SMAMA had agreed to correct deficiencies in the GGS after transfer to ADC. The transfer was effected on 28 February 1967.³⁷

["b1"] The third CTL launch occurred on 30 March 1967, with excellent results. []

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There had been an interval of two years between the second (5 April 1965) and third CTL. As to future

CTL, ADC, in May 1967, asked USAF for three training payloads for use in maintaining launch crew proficiency until launchings in connection with Program 922 testing began in 1969. Looking still further into the future, ADC anticipated the need for five additional CTL launches between the end of Program 922 testing in FY 1970 and the planned end of Program 437 in FY 1974. There had been no USAF decision on this request by the end of June 1967.³⁸

Despite apparent agreement between ADC and SMAMA on the responsibility for correction of the RF problem as it involved GGS-2, the agreement proved more apparent than real. While a temporary solution was provided by erection of a 24-foot by 70-foot copper mesh screen between GGS-2 and LE-1, this was obviously not a permanent answer to the problem. ADC insisted that provision of a permanent solution was a proper SMAMA mission, but SMAMA seemed reluctant to assume it. In early April 1967, however, SMAMA did estimate that it would take from six to 12 months of effort to devise a permanent

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solution. Although it would prove to be an expensive alternative, ADC suggested that GGS-2 be resited.³⁹

A similar Titan-UNIVAC 642B modification was also planned for GGS-1 (Building 100) on Johnston Island. At the end of 1966 it was hoped that initial operational capability would be achieved at Building 100 by 1 January 1968. The two conversions could not be made concurrently because it was essential that at least one GGS on Johnston Island be working at all times if Program 437 was to be considered operational. After the THOR demonstration launch of 30 March 1967 indicated that GGS-2 was operating satisfactorily (if the RF problem was excluded), it was possible to proceed with the modification of GGS-1. Although GGS-1 had been retained in operational status 30 days longer than had been planned, there was still confidence in the spring of 1967 that Building 100 could be released to the construction contractor, Holmes and Narver, on the previously scheduled date of 15 June 1967. Before mid-1967, in fact, there had been prepared a schedule

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that called for GGS-1 readiness on 15 December 1967, a small improvement in hopes expressed at the end of 1966.⁴⁰

As to the training GGS at Vandenberg, it was agreed, at the end of 1966, that Space Systems Division (SSD) of AFSC would turn over Vandenberg GGS-4 to ADC as soon as ADC had provided a UNIVAC 642B computer for SSD use at GGS-6. USAF had provided the necessary \$550,000 by the end of 1966 and at that time it was expected that GGS-4 would be transferred to ADC on 1 January 1968. This date began to slip almost immediately, however. In February 1967 ADC agreed to set back ADC occupancy of GGS-4 to 31 March 1968 so long as ADC could continue to use GGS-4 at times when it would not interfere with SSD operations. At the middle of 1967, SMAMA said it could complete an above-ground antenna for GGS-4 by 15 April 1968, while SSD indicated this event would not occur until 1 September 1968. ADC, unable to reconcile these two dates, asked for clarification.⁴¹

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Another complication arose in connection with ADC acquisition of a Titan-UNIVAC 642B training facility at Vandenberg when it became known that the antenna for the Titan radar at GGS-4 was located in a silo. ADC proposed raising the antenna to ground level and placing it directly upon the silo doors. This request was made because SMAMA estimated that maintenance of the silo lift capability would cost \$60,000 a year. If the GGS-4 antenna was raised to ground level, however, the two antennas of GGS-6 would only be four feet higher than the GGS-4 antenna and the GGS-4 antenna would be directly in line-of-sight of the GGS-6 antennas. ADC proposed that the GGS-6 antennas be moved to another site. This matter was still under discussion at the middle of 1967.⁴²

(U) For a time in the late spring and early summer of 1967, ADC considered the possibility of using an Atlas Mark II General Electric GGS in place of the Titan-UNIVAC 642B system at GGS-4. The Mark II system appeared to offer definite advantages, but this planning

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came to naught when it was discovered that Mark II⁴³ equipment would not be available for ADC use.

A new mission involving booster launching from Vandenberg was acquired by ADC in 1967. Before transfer of the mission, a SAC unit at Vandenberg was responsible for launching THOR boosters, with a BURNER II upper stage

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By late January 1967, ADC had drafted a plan for the shift of responsibility from SAC to ADC. Following mutual agreement on the terms of the transfer, the mission was officially shifted on 1 April 1967. It was originally planned that the initial "b1" launch under ADC auspices would occur on 30 June 1967, but various delays were encountered and in July 1967 it was expected the initial ADC launch would be accomplished in late August 1967. In this connection, USAF took the position, in March 1967, that ADC participation in

"b1" launches would obviate the need for further Program 437 training launches. ADC, however, replied that

"b1" activities would exercise only the personnel

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involved with the booster. The only way training could be provided for guidance/targeting and munitions specialists was through the Program 437 CTL. No action had been taken, by mid-1967

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Planning for Program 922, an advanced and more sophisticated anti-satellite weapon expected to replace Program 437, continued. Ling-Temco-Vought, the development contractor, was given a letter contract in June 1967 in order that development might continue until it was possible to determine the extent of research and development funds available for FY 1968. This contract was preliminary only and was not intended to imply formal approval of Phase II development. Assuming that no serious financial or technological hitches were experienced, the Proposed System Program Package (PSPP) for Program 922 called for test launches during

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FY 1969 and part of FY 1970.⁴⁵

Discussion of the means of destroying a hostile satellite had gotten underway almost from the day in October 1957 the Soviet Union proved it was possible to put an object into orbit around the earth. The first fruit of these discussions was SAINT, a project into which the incoming Kennedy administration put \$14 million in 1961. But it soon became evident that imagination was outrunning technology where SAINT was concerned and it was reduced to study status. In February 1962 planning began for an interim anti-satellite weapon that ultimately became operational in June 1964 as Program 437. At about the same time that Program 437 became operational, ADC published a Qualitative Operational Requirement (QOR) for a Satellite Interceptor System (SIS) that outlined a four-phase system in which Program 437 was Phase I.

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While the approved-for-development Program 922 was an improvement over Program 437, it still fell far short of the requirement stated in the SIS QOR of July 1964. The QOR was never approved by higher authority and was replaced by an updated Required Operational Capability (ROC) document on the same subject, dated 17 March 1967. This updated document stated a requirement that was similar to that stated in 1964, but gave a primary and secondary objective for the SIS.

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